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| 10/661,742 | 09/12/2003 | Eva Rojer | Strom.7274 | 9486 |

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| EXAMINER |
|---|
| SANG, HONG |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/661,742 | ROJER, EVA | |
| | Examiner | Art Unit | |
| | Hong Sang | 1643 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 June 2007*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-44* are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

**RE: Rojer**

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 5, 6, and 9, drawn to a fusion protein coded by one or more of exons 2-7 of SCCA1 gene fused to exon 8 of SCCA2, classified in class 530, subclass 350.

II. Claims 7 and 8, drawn to a fusion protein coded by one or more of exons 2-7 of SCCA2 gene fused to exon 8 of SCCA, classified in class 530, subclass 350.

III. Claims 10-14, and 17-21, drawn to a DNA sequence coding for a fusion SCCA1/SCCA2 protein, a DNA sequence comprising the nucleotide sequence of exon 2-7 of SCCA1 fused to the nucleotide sequence of exon 8 of SCCA2, a plasmid comprising the nucleic acid sequence, a protein expression system for production of SCCA1/SCCA2 fusion protein, classified in class 536, subclass 23.1.

IV. Claims 15, and 16, drawn to a plasmid comprising the nucleotide sequence corresponding to one or more of exon 2-7 of SCCA2 fused to exon 8 of SCCA1, classified in class 536, subclass 23.1.

V. Claim 23, drawn to a method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a CDNA cloning and sequencing analysis of tumor DNA, classified in class 435, subclass 6.

VI. Claim 24, drawn to a method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a CDNA cloning and sequencing analysis of tumor DNA, classified in class 435, subclass 6.

VII. Claim 25, drawn to a method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a Southern blot-technology applied on tumor DNA, classified in class 435, subclass 6.

VIII. Claim 26, drawn to a method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a Southern blot-technology applied on tumor DNA, classified in class 435, subclass 6.

IX. Claim 27, drawn to a method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using a PCR-analysis technology, classified in class 435, subclass 6.

X. Claim 28, drawn to a method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using a PCR-analysis technology, classified in class 435, subclass 6.

XI. Claims 29, drawn to a method for detecting the gene rearrangement forming the SCCA1/SCCA2 fusion protein using an amino acid sequencing technology, classified in class 435, subclass 4.

XII. Claim 30, drawn to a method for detecting the gene rearrangement forming the SCCA2/SCCA1 fusion protein using an amino acid sequencing technology, classified in class 435, subclass 4.

XIII. Claim 31, 37, 39, and 41, drawn to a method for detecting the SCCA1/SCCA2 fusion protein using Western blotting, an immunoassay for detecting SCCA1/SCCA2 fusion protein, a method for diagnosing the presence or absence of a squamous cell carcinoma by detecting the SCCA1/SCCA2 fusion protein, classified in class 435, subclass 7.1.

XIV. Claims 32, 38, and 40, drawn to a method for detecting the SCCA2/SCCA1 fusion protein using Western blotting, an immunoassay for detecting SCCA2/SCCA1 fusion protein, a method for diagnosing the presence or absence of a squamous cell carcinoma by detecting the SCCA2/SCCA21 fusion protein, classified in class 435, subclass 7.1.

XV. Claims 33, 35, 42, and 44, drawn to an antibody reactive with SCCA1/SCCA2 fusion protein, a kit comprising said antibody, classified in class 530, subclass 387.1.

XVI. Claims 34, 36, and 43, drawn to an antibody reactive with SCCA2/SCCA21 fusion protein, a kit comprising said antibody, classified in class 530, subclass 387.1.

2. Claims 1, 2 are linking claims which links groups III and IV. Claims 3 and 4 are linking claims which link groups I and II together. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are

advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. In re Ziegler, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

3. The inventions are distinct, each from the other because of the following reasons:

The polypeptide of groups I&II and polynucleotide of groups III&IV are patentably distinct inventions for the following reasons. Polypeptides, which are composed of amino acids, and polynucleotides, which are composed of purine and pyrimidine units, are structurally distinct molecules; any relationship between a polynucleotide and polypeptide is dependent upon the information provided by the nucleic acid sequence open reading frame as it corresponds to the primary amino acid sequence of the encoded polypeptide. While a polypeptide of groups I&II can be made using the polynucleotides of groups III&IV, the polypeptide can also be made by another and materially different process, such as by peptide synthesis or purification from the natural source. Further, the polynucleotide may be used for the processes other than the production of the protein, such as nucleic acid hybridization. For these reasons, the inventions of groups I&II and groups III&IV are patentably distinct.

Furthermore, searching the inventions of groups I&II and groups III&IV together would impose a serious search burden. In the instant case, the search of the polypeptides and the polynucleotides are not coextensive. The inventions of groups I&II and groups III&IV have a separate status in the art as shown by their different classifications. In cases such as this one where descriptive sequence information is provided, the sequences are searched in appropriate databases. There is search burden also in the non-patent literature. Prior to the concomitant isolation and expression of the sequence of interest there may be journal articles devoted solely to polypeptides which would not have described the polynucleotide. Similarly, there may have been "classical" genetics papers which had no knowledge of the polypeptide but spoke to the gene. Searching, therefore is not coextensive. As such, it would be burdensome to search the inventions of groups I&II and groups III&IV together.

Groups I and II are patentably distinct because they are drawn to structurally and functionally distinct proteins. Moreover, the searches for groups I and II are not coextensive. For example the search for group I would require a search for SEQ ID NO.1, which is not required by group II.

Groups III and IV are patentably distinct because they are drawn to structurally and functionally distinct nucleic acids. Moreover, the searches for groups III and IV are not coextensive. For example the search for group III would require a search for SEQ ID NO.11, which is not required by group IV.

Inventions V-XIV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, and different effects (MPEP § 806.04, MPEP § 808.01). The instant specification does not disclose that these methods would be used together. A method detecting gene rearrangement forming the SCCA1 and SCCA2 fusion protein using a cDNA cloning and sequencing analysis of tumor DNA (groups V&VI), a method detecting gene rearrangement forming the SCCA1 and SCCA2 fusion protein using a Southern blot-technology applied on tumor DNA (groups VII and VIII), a method detecting gene rearrangement forming the SCCA1 and SCCA2 fusion protein using a PCR-analysis technology (groups IX and X), a method detecting gene rearrangement forming the SCCA1 and SCCA2 fusion protein using an amino acid sequencing technology (groups XI and XII), a method of detecting SCCA1 and SCCA2 fusion protein and a method of diagnosis of a squamous cell carcinoma (groups XIII and XIV), are all unrelated as they comprise distinct steps and utilize different products which demonstrates that each method has a different mode of operation. Each invention performs this function using a structurally and functionally divergent material and comprises different methodological steps. For groups V and VI, a cDNA is cloned and sequenced; for groups VII and VIII, Southern blot technology is used; for groups IX and X, a PCR analysis is carried out, for groups XI and XII, the fusion protein is sequenced, for groups XIII and XIV, a fusion protein is detected using an antibody and squamous cell carcinoma is diagnosed. Therefore, the methods of groups V-XIV are patentably distinct. The inventions of groups V&VI, VII&VIII, IX&X, XI&XII, XIII&XIV further differ

from each other in that the fusion nucleic acid to be detected, or the fusion protein to be detected is different. For inventions of groups V, VII, IX, XI and XIII, the SCCA1/SCCA2 nucleic acid or protein is detected. Whereas, for inventions of groups VI, VIII, X, XII and XIV, the SCCA2/SCCA1 nucleic acid or protein is detected. For these reasons, the inventions of groups V-XIV are patentably distinct.

Furthermore, the distinct steps and products require separate and distinct searches. As such, it would be burdensome to search the inventions of groups V-XIV together.

The polypeptide of groups I&II and the antibody of groups XV&XVI are patentably distinct for the following reasons:

While the inventions of both groups I&II and groups XV&XVI are polypeptides, in this instance the polypeptide of groups I&II is a single chain molecule that functions as an enzyme, whereas the polypeptide of groups XV&XVI encompasses antibodies including IgG which comprises 2 heavy and 2 light chains containing constant and variable regions, and including framework regions which act as a scaffold for the 6 complementarity determining regions (CDRs) that function to bind an epitope. Thus the polypeptide of groups I&II and the antibody of groups XV&XVI are structurally distinct molecules.

Furthermore, searching the inventions of groups I&II and groups XV&XVI would impose a serious search burden. The inventions have a separate status in the art as shown by their different classifications. A polypeptide and an antibody which binds to

the polypeptide require different searches. An amino acid sequence search of the full-length protein is necessary for a determination of novelty and unobviousness of the protein. However, such a search is not required to identify the antibodies of group III. Furthermore, antibodies which bind to an epitope of a polypeptide of groups I&II may be known even if a polypeptide of groups I&II is novel. In addition, the technical literature search for the polypeptide of groups I&II and the antibody of groups XV&XVI are not coextensive, e.g., antibodies may be characterized in the technical literature prior to discovery of or sequence of their binding target.

Inventions XIII&XV, and Inventions XIV and XVI are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the fusion protein can be detected by mass spectroscopy or amino acid sequencing, the squamous cell carcinoma can be detected by imaging, as opposed to the use of the antibody to fusion protein of SCCA1 and SCCA2.

Searching the inventions of Groups XIII&XV, or groups XIV&XVI together would impose serious search burden. The inventions of groups XIII&XV, or groups XIV&XVI have a separate status in the art as shown by their different classifications. Moreover, in the instant case, the search for the antibodies and the method of detecting the fusion protein or diagnosing squamous cell carcinoma using an antibody are not coextensive.

The search for groups XIII and XIV would require a text search for the method steps. Prior art which teaches an antibody that binds to a fusion protein of SCCA1 and SCCA2 would not necessarily be applicable to the method of using the antibody. Moreover, even if the antibody product was known, the method of diagnosis which uses the product may be novel and unobvious in view of the preamble or active steps.

Groups XV and XVI are patentably distinct because they are drawn to structurally and functionally distinct antibodies, which would require separate search.

Any one of the Inventions I-IV and any one of the inventions V-XIV are directed to an unrelated product and process because the product of Inventions I-IV cannot be used in, or made by, the process of Inventions V-XIV. See MPEP § 802.01 and § 806.06.

Groups III&IV and groups XV&XVI are unrelated because the nucleic acids of groups III&IV do not encode the antibodies of groups XV&XVI.

4. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after

the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

5. This application contains claims directed to the following patentably distinct species:

(a) coded by one of exons 2-7 of SCCA1 gene fused to exon 8 of SCCA2 gene, coded by more of exons 2-7 of SCCA1 gene fused to exon 8 of SCCA2 gene, coded by exon 2-7 of SCCA1 gene fused to exon 8 of SCCA2 gene

(b) coded by one of exons 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene, coded by more of exons 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene, coded by exon 2-7 of SCCA2 gene fused to exon 8 of SCCA1 gene

Different number of exons would encode structurally and functionally distinct proteins. Therefore, the species are distinct.

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species from each of the groups (a) and (b) for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, 1-4, 10, 18, and 23-44 are generic.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

6. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Sang whose telephone number is (571) 272 8145. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry R. Helms can be reached on (571) 272-0832. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hong Sang, Ph.D.
Art Unit 1643
August 29, 2007

/Christopher Yaen/
Primary Examiner
Art Unit 1643
August 29, 2007